

IN THE CLAIMS:

1. (currently amended) A vacuum apparatus comprising:

a process chamber for processing ~~for~~ a workpiece;
~~work-piece; and~~

a transfer chamber connected to the process chamber via a gate valve; ~~for accommodating a transfer apparatus to an inside thereof, wherein~~

the a transfer apparatus comprises: disposed in the transfer chamber, the transfer apparatus having a pair of generally parallel and spaced-apart tapes each having a tip end portion and at least one workpiece holder connected to the tip end portion of each of the tapes for supporting the workpiece, the tapes being configured to undergo movement from a retracted position to an extended position in which the tapes are extended in a longitudinal direction thereof via the gate valve to position the workpiece holder and the workpiece in the process chamber; and

~~tape provided with a work-piece holder hand in its tip end portion, in which the tip end portion extends to an inside of the process chamber in an extended state extending in a longitudinal direction, and is accommodated inside the transfer apparatus in a shrunk state; and~~

feeding means for feeding the tapes ~~this tape~~ in the longitudinal direction to the extended position.

2. (currently amended) A vacuum apparatus according to ~~claim 1, wherein the tape is a tape~~ claim 1; wherein each of the tapes is made of an elastic material having a curved cross-section ~~cross-section~~.

3. (currently amended) A vacuum apparatus according to ~~claim 1, wherein~~ claim 1; wherein the feeding means comprises ~~is~~ a driving pulley.

4.- 5. (canceled).

6. (currently amended) A vacuum apparatus comprising:

a process chamber for processing a workpiece;

a transfer chamber connected to the process chamber via a gate valve;

a transfer apparatus disposed in the transfer chamber, the transfer apparatus having a tape having a front end portion and a workpiece holder connected to the front end portion of the tape for supporting the workpiece, the tape being configured to undergo movement from a retracted position to an extended position in which the tape is extended in a longitudinal direction thereof via the gate valve to position the workpiece holder and the workpiece in the process chamber;

a generally cylindrical-shaped case connected to the transfer chamber for accommodating a rear end portion of the tape; and

a feeding mechanism for feeding the tape in the longitudinal direction to the extended position, the feeding mechanism having a ~~according to claim 5, wherein the feeding means comprises: a driven magnet attached~~ connected ~~to the rear end portion of the tape and side of the tape; and a driving magnet movably mounted on an exterior surface of the cylindrical-shaped case to undergo movement for driving the driven magnet to feed the tape in the longitudinal direction. provided along the tape accommodating cylinder in the outside of the tape accommodating cylinder; and wherein by making the driven magnet follow movement of the driving magnet, the tape is fed.~~

7. (currently amended) A vacuum apparatus according to ~~claim 1, wherein the work-piece holder hand is attached to a tip member of a linear guide portion attached to a base of the transfer apparatus~~ claim 1; further comprising a linear guide member connected to the front end portion of the tapes for movement therewith; and wherein the workpiece holder is connected to an end portion of the linear guide member.

8. (currently amended) A vacuum apparatus comprising:

a process chamber for processing a workpiece;

a transfer chamber connected to the process chamber via a gate valve;

a transfer apparatus disposed in the transfer chamber, the transfer apparatus having a tape and a workpiece holder connected to the tape for supporting the workpiece, the tape being configured to undergo movement from a retracted position in which the tape is disposed in the transfer chamber to an extended position in which the tape is extended in a longitudinal direction thereof via the gate valve to position the workpiece holder and the workpiece in the process chamber;

feeding means for feeding the tape in the longitudinal direction to the extended position; and

a linear guide member supporting the workpiece holder and connected to the tape for movement therewith, the linear guide member having a plurality of linear guide portions connected to undergo sliding movement relative to one another during movement of the tape in the longitudinal direction. ~~according to claim 7, wherein the linear guide portion has a plurality of slide portions between the base and the tip member.~~

9. (currently amended) A vacuum apparatus according to ~~claim 1, wherein a plurality of the work-piece holder hands are provided in the transfer apparatus, and this plurality of work-piece holder hands are disposed in an upper side and a lower side thereof.~~ claim 1; wherein the at least one workpiece holder comprises a plurality of workpiece holders

each disposed on a respective one of an upper side and a lower side of the tapes.

10. (currently amended) A transfer apparatus comprising:

at least one workpiece holder for supporting a workpiece;

a pair of generally parallel and spaced-apart tapes each having a tape provided with work-piece holder hand in its tip end portion, and portion connected to the workpiece holder, the tapes being configured to undergo movement from a retracted position to an extended position in which the tapes are extended in a longitudinal direction thereof; and

feeding means for feeding the tapes in the sliding this tape in a longitudinal direction to the extended position.

11. (currently amended) A transfer apparatus according to ~~claim 10~~, wherein the tape is a tape claim 10; wherein each of the tapes is made of an elastic material having a curved cross-section ~~eress section~~.

12. (currently amended) A transfer apparatus according to ~~claim 10~~, wherein claim 10; wherein the feeding means ~~is~~ comprises a driving pulley.

13. (canceled).

14. (currently amended) A transfer apparatus
comprising:

a workpiece holder for supporting a workpiece;
a tape having a tip end portion connected to the
workpiece holder, the tape being configured to undergo
movement from a retracted position to an extended position in
which the tape is extended in a longitudinal direction
thereof;

feeding means for feeding the tape in the
longitudinal direction to the extended position; and

~~according to claim 10, wherein a tape accommodating~~
~~cylinder is extendedly provided in upward and downward~~
~~directions, and the rear end side of the tape is accommodated~~
~~inside this~~ a generally cylindrical-shaped case for
accommodating a rear end portion of the tape.

15. (currently amended) A transfer apparatus
~~according to claim 13, wherein: the~~ claim 14; wherein the
feeding means comprises ~~has~~ a driven magnet connected to the
rear end portion attached to the rear end side of the tape and
a driving magnet mounted on an exterior surface of the
cylindrical-shaped case to undergo movement for driving the
driven magnet to feed the tape in the longitudinal direction.
~~provided in the outside of the tape accommodating cylinder;~~
~~and the driving magnet moves along the tape accommodating~~

~~cylinder, and the driven magnet follows the movement and moves, to thereby feed the tape.~~

16. (currently amended) A transfer apparatus according to ~~claim 10, wherein the work-piece holder hand is attached to a tip member of a linear guide portion has a plurality of slide portions between the base and the tip member.~~ claim 10; further comprising a linear guide member connected to the tip end portion of the tapes for movement therewith; and wherein the workpiece holder is connected to an end portion of the linear guide member.

17. (currently amended) A transfer apparatus comprising:

a workpiece holder for supporting a workpiece;
a tape having a tip end portion connected to the workpiece holder, the tape being configured to undergo movement from a retracted position to an extended position in which the tape is extended in a longitudinal direction thereof;

feeding means for feeding the tape in the longitudinal direction to the extended position; and

a linear guide member supporting the workpiece holder and connected to the tape for movement therewith, the linear guide member having a plurality of linear guide portions connected to undergo sliding movement relative to one

another during movement of the tape in the longitudinal direction. ~~according to claim 15, wherein the linear guide portion has a plurality of slide portions between the base and the tip member.~~

18. (currently amended) A transfer apparatus according to ~~claim 10, wherein a plurality of pairs of the work-piece holder hands and the feeding means thereof are provided, and this plurality of work-piece holder hands are disposed in an upper side and a lower side thereof.~~ claim 10; wherein the at least one workpiece holder comprises a plurality of workpiece holders each disposed on a respective one of an upper side and a lower side of the tapes.

19. (currently amended) A vacuum apparatus comprising:

a process chamber for processing ~~for~~ a workpiece;
~~work-piece;~~ and

a transfer chamber connected to the process chamber via a gate valve; ~~for accommodating a transfer apparatus to an inside thereof, wherein~~

~~the~~ a transfer apparatus comprises: a having linear guide, at least one workpiece holder connected to a which is provided with a work-piece holder hand in its tip end portion of the linear guide for supporting the workpiece, and a tape having an end portion connected to the tip end portion of the

tape guide, the tape being configured to undergo movement from
a retracted position to an extended position in which the tape
is extended in a longitudinal direction thereof via the gate
valve to move the linear guide to position the workpiece
holder and the workpiece in the process chamber; in which the
tip end portion extends to an inside of the process chamber in
an extended state extending in a longitudinal direction, and
is accommodated inside the transfer apparatus in a shrunk
state;

a tape a tip end side of which is attached to the
tip end portion of the linear guide, for extending and
shrinking the linear guide using its movement;

a generally cylindrical-shaped case connected to the
transfer chamber for accommodating a rear end portion of the
tape; a tape accommodating cylinder provided downward the
transfer chamber for accommodating a rear end side of the
tape; and

a feeding mechanism for feeding the tape in the
longitudinal direction to the extended position, the feeding
mechanism feeding means having a driven magnet connected to
the rear end portion attached to the rear end side of the tape
and a driving magnet mounted on an exterior surface of the
cylindrical-shaped case to undergo movement for driving
provided movably along the tape accommodating cylinder in the
outside of the tape accommodating cylinder, in which by making

the driven magnet to feed the tape ~~follow movement of the driving magnet, the tape is moved~~ in the longitudinal direction.

20. (currently amended) A vacuum apparatus according to claim 19; wherein the at least one workpiece holder comprises a plurality of workpiece holders each disposed on a respective one of an upper side and a lower side of the tape. ~~claim 19, wherein the transfer apparatus is provided with a plurality of the holder hands for the workpiece, and this plurality of holder hands for the workpiece are disposed in an upper side and a lower side thereof.~~

21. (new) A vacuum apparatus according to claim 1; wherein the tapes are symmetrical about a longitudinal central axis of the workpiece holder.

22. (new) A vacuum apparatus according to claim 10; wherein the tapes are symmetrical about a longitudinal central axis of the workpiece holder.

23. (new) A vacuum apparatus comprising:
a process chamber for processing a workpiece;
a transfer apparatus for positioning the workpiece in the process chamber and for removing the workpiece from the process chamber, the transfer apparatus having a pair of generally parallel and spaced-apart transfer bodies and a

workpiece holder connected to the transfer bodies for supporting the workpiece; and

a feeding mechanism for feeding the transfer bodies in a longitudinal direction thereof to position the workpiece holder and the workpiece in the process chamber.

24. (new) A vacuum apparatus according to claim 23; wherein the transfer bodies are configured to undergo movement from a retracted position to an extended position in which the transfer bodies are extended in the longitudinal direction to position the workpiece holder and the workpiece in the process chamber.

25. (new) A vacuum apparatus according to claim 24; further comprising a winding mechanism for winding the transfer bodies to the retracted position.

26. (new) A vacuum apparatus according to claim 23; wherein each of the transfer bodies is made of an elastic material having a curved cross-section.

27. (new) A vacuum apparatus according to claim 23; wherein the transfer bodies are symmetrical about a longitudinal central axis of the workpiece holder.

28. (new) A vacuum apparatus according to claim 23; wherein the transfer apparatus further comprises a slide mechanism connected to the transfer bodies and supporting the

workpiece holder, the slide mechanism having a plurality of slide members mounted to undergo sliding movement during movement of the transfer bodies in the longitudinal direction to position the workpiece holder and the workpiece in the process chamber.

29. (new) A vacuum apparatus according to claim 23; wherein the workpiece holder comprises a base portion, a plurality of support portions projecting from the base portion in a first direction, and a plurality of connecting portions projecting from the base portion in a second direction opposite to the first direction and connected to the transfer bodies.

30. (new) A vacuum apparatus according to claim 23; wherein the feeding mechanism comprises a plurality of pulleys.